

整合二氧化碳礦化封存與海藻固碳再利用 營造海洋牧場之研究

執行單位

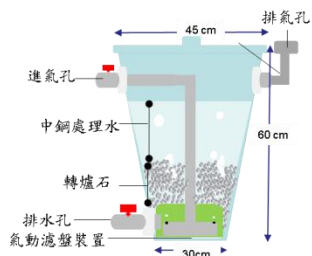
國立成功大學水工試驗所

計畫主持人

余進利

- 本團隊與中鋼公司產學合作再利用「轉爐石」進行二氧化碳封存研究。
- 「藻場固碳礁」可應用於人工魚礁區、近岸保護礁區與箱網養殖區，甚至綠能離岸風電與近岸光電場域，作為保護基座、圍堤填方與營造海洋牧場之多重功效。

◆ 轉爐石碳酸化裝置(申請中)



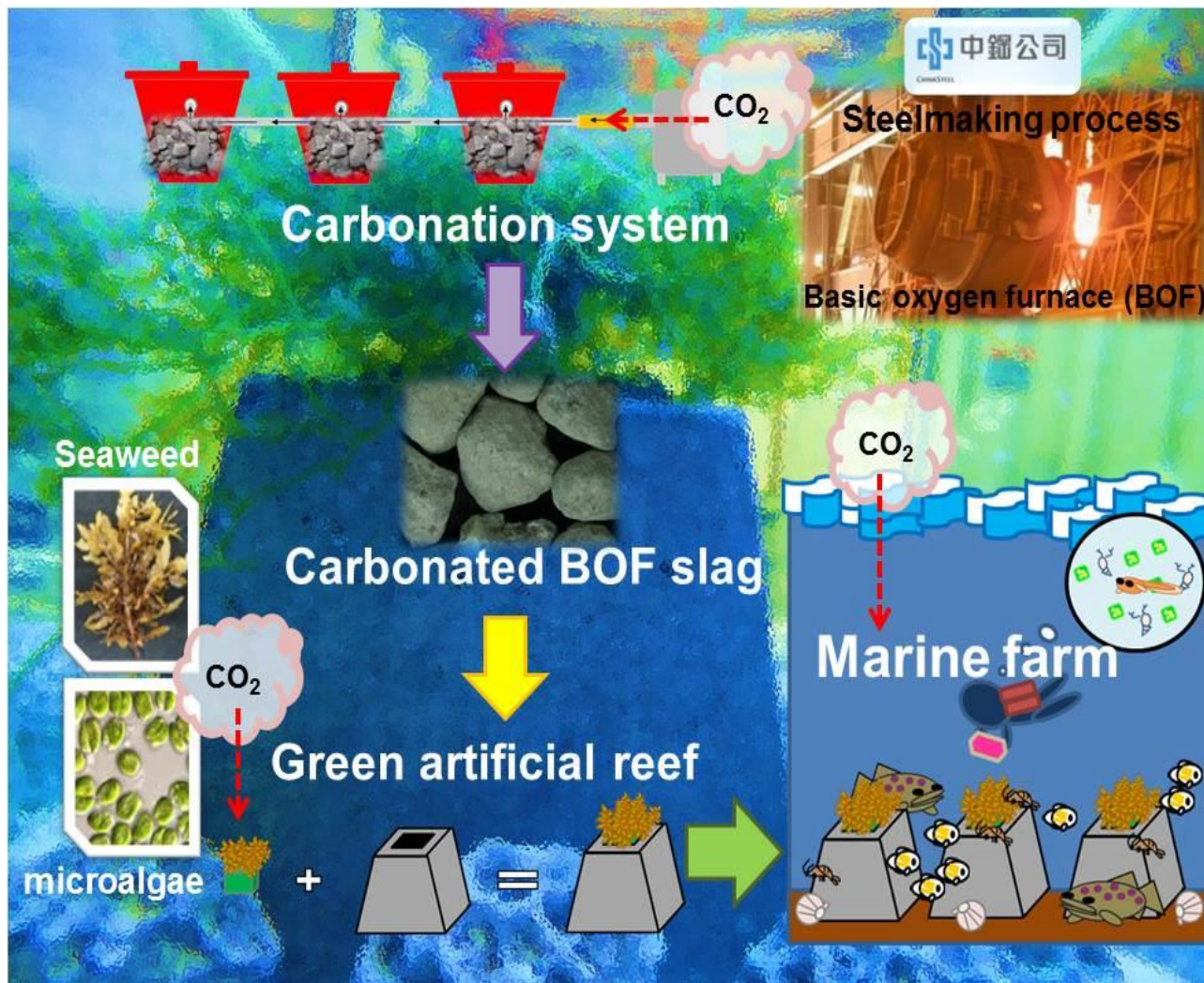
◆ 固碳多孔基材及其生態礁石 (申請中)



Fish population

Ulva compressa

Padina australis



- 新研發碳酸化系統:轉爐石吸收煙道氣中 CO_2 達到減碳之功效
- 碳酸化轉爐石乃友善環境與生物且安全之藻場/漁場再生資材
- 使用碳酸化轉爐石製作的藻場固碳礁，可增殖藻類與漁業資源

Integrated carbon dioxide mineral sequestration and carbon fixation by algal cultivation using BOS to create sea forest and marine farm

Execution Unit

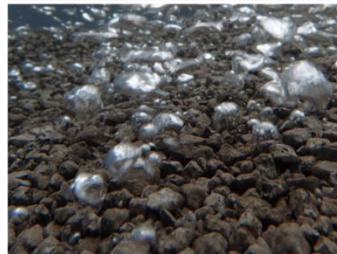
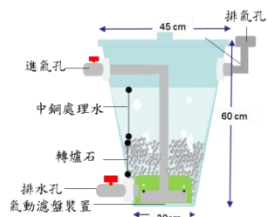
Tainan Hydraulics Laboratory, National Cheng Kung University

Project Director

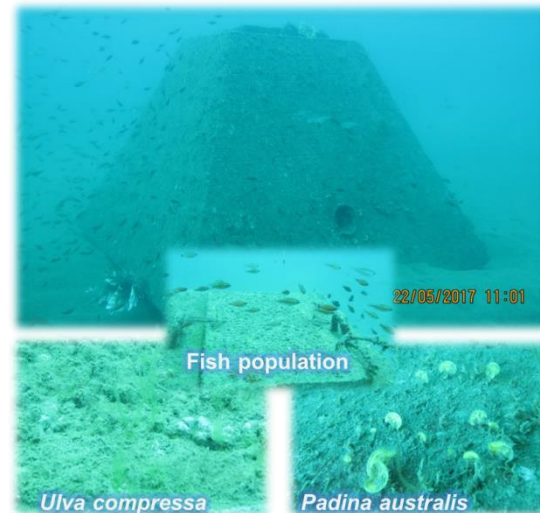
Dr. Jin-Li Yu

- Our Industry-Academia Cooperative Research Project has invited China Steel Corporation (CSC) to use basic oxygen furnace slags for CO₂ mineral sequestration.
- Green artificial reefs can be deployed for increasing fishery resources in the areas of artificial reef, the protected reef, cage culture, and integrated offshore wind farm and coastal solar farm construction for multiple effects.

◆ Carbonation Device of Basic Oxygen Furnace Slag (Submitting)



◆ Carbon Fixation Porous Matrix and Ecological Reef Thereof (Submitting)





- The BOF slags can reduce CO₂ of flue gas in the novel carbonation system.
- The carbonated BOF slag is an eco-friendly and environmental safety materials for algal beds and fishing ground regeneration.
- The green artificial reef exhibited CO₂ fixation by growths of marine algae in the field test, can apply to increase algae and fishery resource.